

Application No. 10/736,731
Amendment dated February 12, 2007
Reply to Office Action of November 14, 2006

Docket No.: 29936/39880

AMENDMENTS TO THE DRAWINGS

The attached sheet includes changes to FIG. 2. Please replace Fig. 2 with Fig. 2A and add Fig. 2B.

Attachment: New sheet

REMARKS

Applicant has carefully reviewed and considered the office action and the reference relied upon by the Examiner. Entry of the above amendments is respectfully requested. Claims 1, 3, 6 and 11 have been amended and Fig 2B has been added to more clearly recite the invention without adding new matter.

Claim Rejectins-35 U.S.C. §112

Claims 6 and 11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.

In response to the rejection of claims 6 and 11, applicant has amended claims 6 and 11. These amendments are not narrowing amendments, and have not been made in response to any prior art rejection. Accordingly, applicant believes that the claims 6 and 11 are now proper.

Claims 3, 6-15 and 17-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In response to the rejection of claims 3 and 6, independent claims 3 and 6 have been amended to more particularly define and distinctly claim the subject matter which applicant regards as the invention. These amendments too are not narrowing amendments. Accordingly, applicant believes that the claims 3 and 6 are proper.

In response to the rejection of claim 11, the applicant respectfully traverses the reasoning relied upon in the rejection of claim 11. In claim 11, the recitations “in which the delay circuit respectively receive the output signals” are definite because it is particularly described in paragraph [0028] of the written description. Paragraph [0028] of the present application shows that a delay circuit may be constructed to delay the output signal outputted from the off-chip driver with it added to the output terminal of the off-chip driver, as recited. Figure 2A of the present application provides specific support for the recitations of amended

claim 6. Figure 2B of the present application provides specific support for the recitations of amended claim 11.

In response to the rejection of claim 14, the applicant respectfully submits that the recitation “the output driver circuit comprises output drivers connected to output terminals of the delay circuits and the pre driver circuit” is also definite as set forth above.

Claims 7-10, 12-15 and 17-19 are alleged indefinite because of the technical deficiencies of claims 3, 6 and 11. Applicant believes that claims 7-10, 12-15 and 17-19 depending on base claims are also in condition for allowance because amended base claims 3, 6 and 11 are in condition for immediate allowance.

Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

Claim Rejections-35 U.S.C. §102

Claims 6, 7, 9, 11, 12 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Saeki (US 6,396,318).

(1) Claim 6

Amended independent claim 6 recites a data output circuit including a plurality of delay circuits, at least two of which have different delay times with respect to each other, in which the delay circuits receive a data signal and generate delayed data signals, a plurality of off-chip drivers for respectively receiving the delayed data signals from the respective delay circuits and generating respective output signals in response to respective control signals, a pre-driver circuit adapted to receive the data signal and drive an output driver circuit and the output driver circuit connected to the output terminals of the off-chip drivers and the pre-driver circuit, wherein the total number of the off-chip drivers to be activated is determined by the respective control signals which are generated in response to a desired drivability.

However, the reference relied upon in the Office action (hereinafter Saeki) fails to disclose or suggest delay circuits receiving data signals, off chip drivers receiving the

delayed data signals and generating output signals in response to control signals, the pre driver circuit receiving the data signal and the output driver circuit connected to the output terminal of the off chip driver and the pre drive circuit as recited in amended claim 6. Furthermore, Saeki fails to disclose control signals generated in response to a desired drivability and determining the off-chip driver to be activated.

In contrast, Saeki discloses delay circuits X1...X12 which receive clock signals, not data signals. A clock signal is substantially different from a data signal. The clock signal is a timing signal for an operation. However, data signals have nothing to do with timing.

Also, latch circuit LAT 103 disclosed in Saeki has a clock input terminal C to which a signal is obtained by inverting a clock signal 101. That is, latch circuit LAT 103 disclosed in Saeki operates according to timing of an inverted clock signal. In contrast, the off-chip drivers recited in amended claim 6 are turned on or off in response to a control signal. In other words, the off-chip drivers recited in amended claim 6 operate when the control signal is inputted, independent of timing.

Furthermore, combination of X16, LAT103 and encoder 104 receive a clock signal that is inputted to delay circuits as well as an inverted clock signal. However, a pre-driver circuit as recited in amended claim 6 receives the data signal that is inputted to the delay circuits. A pre-driver circuit recited in amended claim 6 does not receive an inverted data signal.

Moreover, a timing dividing circuit disclosed in Saeki is connected to the output terminal of the encoder 104. However, an output driver circuit connected to the output terminals of the off-chip drivers, which the examiner asserts that off chip drivers of the present application corresponds to latch circuits LAT103.

Likewise, a control signal in the invention recited in amended claim 6 turns on or off the off chip drivers to activate them according to a desired drivability. However, Saeki does not teach or even suggest using a control signal to turn on or off the off chip drivers to activate them according to a desired drivability.

Accordingly, amended claim 6 is clearly different from what is disclosed in Saeki, and it is respectfully submitted that amended claim 6 is in condition for immediate allowance. It is further submitted that claims 7-10 and 18, which are dependent on claim 6, are patentable for at least the reason discussed above with respect to claim 6.

2) Claim 11

Independent claim 11 recites a data output circuit including a plurality of off-chip drivers for respectively receiving the delayed data signals from the respective delay circuits and generating respective output signals in response to respective control signals, a plurality of delay circuits at least two of which have different delay times, in which the delay circuits respectively receive the output signals and generate delayed output signals and a pre-driver circuit adapted to receive the data signal and drive an output driver circuit, wherein the total number of the off-chip drivers to be activated is determined by the respective control signals which are generated in response to a desired drivability, and the activated off-chip drivers generate the output signals having the different delay times in response to the delayed data signals, thereby increasing a total drivability of the off-chip drivers.

Saeki discloses delay circuits X1...X12 that are located at an input terminal of the latch circuits. However, the delay circuits recited in amended claim 11 are located at an output terminal of the off-chip drivers. Also, as set forth, each of the input signals or output signals of the circuits recited in amended claim 11 are different from the circuits disclosed in Saeki. Therefore, Saeki fails to recite all of the elements of amended claim 11.

Accordingly, claim 11 is clearly different from what is disclosed in Saeki. It is also submitted that claims 12-15 and 19, which are dependent on claim 11, are also patentable for at least the reasons discussed above with respect to claim 11.

Allowable subject matter

Claims 1 and 16 are allowed.

Conclusion

In view of the above amendments and remarks, Applicant believes that each of the currently pending claims is in condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue. If there is any matter that the Examiner would like to discuss, the Examiner is invited to contact the undersigned representative at the telephone number set forth below.

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Respectfully submitted,

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